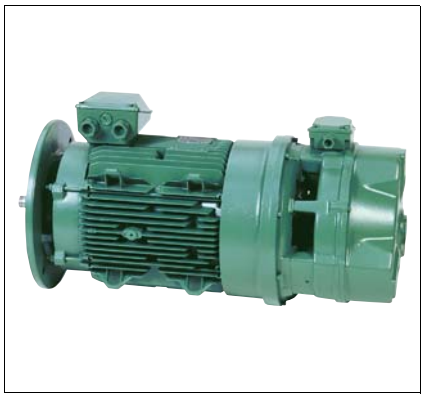
FAP asynchronous brake motors
LS FAP

General information



GENERAL USE : U.G.
Enclosed three-phase asynchronous brake motor, series LS with failsafe alternating current (ac) brake, according to IEC 60034,60072, EN50281.
Separate supply to the motor and the brake.
• Single speed : power 4 to 30 kW, frame size 160 to 200 LT, 4, 6, 8 poles ; 230/400 V, 50 Hz or 400 V Δ.
Maximum number of starts/hr.
- for a continuous duty : 6.
- for a duty factor : S4 40 % (obligatory DP rotor)
  - from 160 to 180 = 180
  - from 200 = 150
  - high number of repetitive starts and stops : consult the factory.

• Two speed : 4/8, 4/12, 4/16 or other consult the factory.

Protection
- IP 55 protection for the motor
- IP 44 protection for the brake

Options
• Brakes
- Screw release
- Brake release indicator.
- Brake lining wear indicator.
- Adaptation for a tachometric-generator or an alternator.
- Special position of the brake terminal box on request.
- IP 44 to IP 65 protection

• Motor
- Construction for Y / Δ starting.
- PTO, PTF, PTC protection probes.
- Anti-condensation heaters.
- Roller bearings (except for LS 160 MP).
- Forced ventilation - study.
- IP 65 protection i for frame sizes 160 and 180.

Finish
Aluminium housing.
Routine test, no load test, dielectric test, control of the resistance and direction of rotation.
Honing and traceability of the brake disk.

Brake motor supply
• Standard according to IEC 60038 :
- 230/400 V +10% -10% at 50 Hz.

Standard construction suitable for the following mains supply :
- 220/380 V +5% -5% and
- 240/415 V +5% -5% at 50 Hz.

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Description of the LS FAP aluminium three phase brake motors

Component	Materials	Remarks
Finned housing	Auminium alloy	- with cast or bolt-on feet, or without feet - pressure die-cast for frame size ≤ 180 - gravity cast for frame size 200 • 4 or 6 mounting holes for foot housing • lifting rings - optional earth terminal
Stator	Insulated low carbon magnetic steel laminations Electrolytic copper	- the low carbon content guarantees long term stability of the characteristics - fited inside a heat expanded housing to provide mechanical rigidity - semi-enclosed slots - insulation system class F
Rotor	Insulated low carbon magnetic steel laminations	- inclined slots - squirrel cage pressure die cast in aluminium (or alloy for special applications) - mounted on shaft by heat shrinking - dynamically balanced rotor class N - 1/2 key
Shaft	Steel	- tapped centre hole - open keyway
End shields	Cast iron	- front and rear, assembled with tie rods
Brake housing	Cast iron	- assembled to the flange with bolts and protected by sheet steel cover
Bearings		- ball bearings C3 type 2RS greased for life - front bearing locked and rear bearing preloaded
Labyrinth seals Lipseals	Technopolymer or steel Synthetic rubber	- front lipseals or jet deflector for all flange motors - lipseals, jet deflector or labyrinth seals for foot motors
Fan	Composite material or auminium alloy	- 2 directions of rotation : straight blades
Terminal box	Metal	- 1 terminal box for the motor - 1 terminal box for the brake - sealed, provided with cable glands, located on top of the motor or brake housing
Painting		- System Ia RAL 6000 (green)

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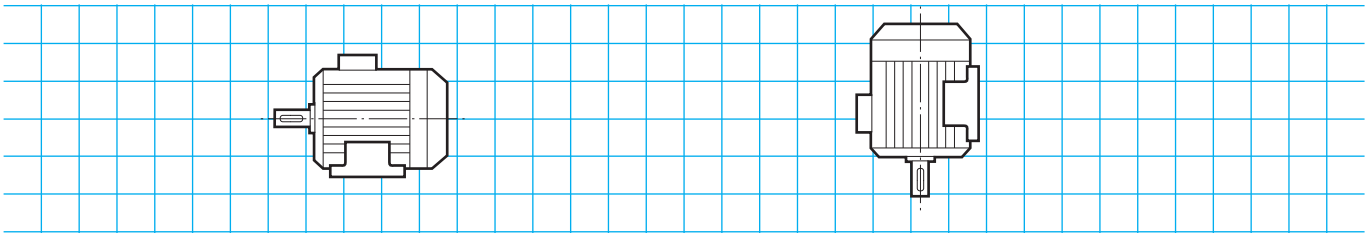
Mounting positions

Foot mounted motor



IM 1001 (IM B3) **IM 1011** (IM V5)

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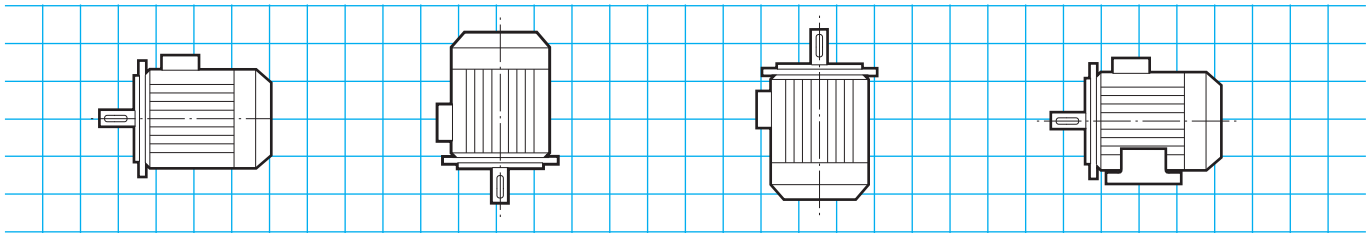
(FF) plain hole flange mounted motor



IM 3001 (IM B5) **IM 3011** (IM V1) **IM 3031** (IM V3) **IM 2001** (IM B35)

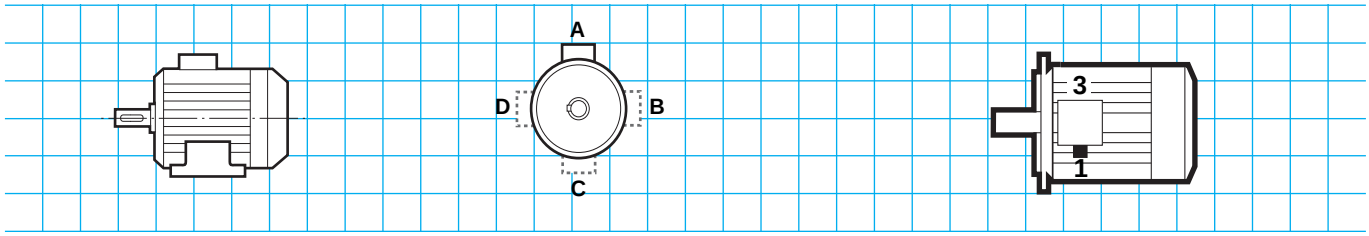
In consideration of the weight of certain motors, B5 mounting must be confirmed by the factory.
V1 - V5 mounting : consult the factory if 2 disks brake.
V3 mounting : impossible if 2 disks brake.

(FT) tapped hole flange mounted motors

• Only for frame size 160 mm . Consult us.

Positions of the terminal box in relation to the motor shaft end

Positions of the cable gland in relation to the motor shaft end



Foot mounted motor
A : only possibility

Flange mounted motor
A : standard

LS 160 to 200 : **1** : standard
(3 : only option)

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Adaptation possibilities

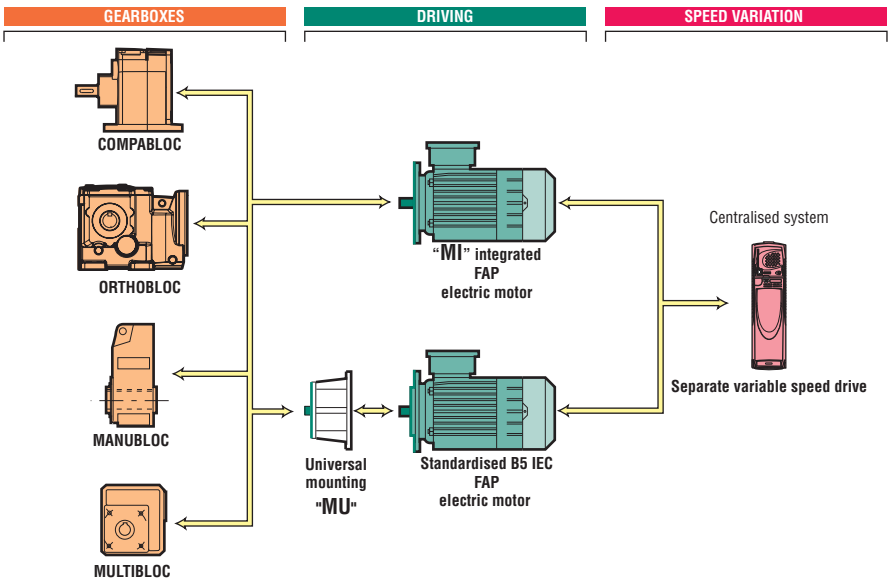
Leroy-Somer offers, for use with their brake motors, many options which meet the needs of highly diverse applications. They are described below and in the chapters relating to gearboxes fixed speed motors, and to variable speed.
For other variants or any specific adaptation, consult the technical specialists at Leroy-Somer who will be pleased to advise you.

☞ *LS FAP brake motors may be integrally mounted (fitted motor), or with a universal mounting (IEC standardised motor) with the following gearboxes :*

- Compabloc
- Orthobloc
- Manubloc
- Multibloc

☞ *LS FAP brake motors may be controlled by a variable speed drive :*

- Centralised system with separate variable speed drive (variable speed open loop vector drive technology or universal variable speed drive with encoder feedback).



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Designation / Codification

4 P 1500 min^{-1}	LS	180	L	FAP	S4	144 N.m	22 kW	IM 1001 (IM B3)	230 / 400 V	A
Speed polarity	Motor type	Motor frame size	Manuf. index (motor)	Brake type	Operating duty	Brake torque	Motor power	Mounting position	Supply voltage	Terminal box position

☞ *Codification example :*
4P LS 180 L FAP S4 144 N.m 22 kW
IM 1001 (IM B3), 230/400 V - A

Designation	Code
4P LS 180 L FAP 22 kW B3 230/400 V	-

All the products in this catalogue have a code.
The coding table is incorporated in the price list together with the list of designations.
Each brake motor product is classified first in order of power and then in order of speed.

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Selection

4 poles 1500 min^{-1}

• LS FAP motor - IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y - Aluminium rotor, U.G. general use
• IP 44 brake - Separate mains supply

Motor type	Brake type	Rated power at 50 Hz P_N kW	Rated speed N_N min^{-1}	Rated current $I_{N\,(400V)}$ A	Power factor $Cos\,\varphi$ 100 %	Efficiency η 100 %	Starting current / Rated current I_D / I_N	Starting torque / Rated torque M_D / M_N	Rated torque M_N N.m	moment of inertia J kg.m^2	Brake torque $M_f \pm 20$ % N.m	Weight IM B3 kg
LS 160 MP	**FAP 132**	11	1456	21.1	0.85	88.4	7.7	2.9	72	0.055	72	115
LS 160 L	**FAP 160**	15	1455	28.6	0.85	89.1	6.5	2.7	98	0.104	98	150
LS 180 MT	**FAP 160**	18.5	1456	35.4	0.84	90.3	7.4	2.9	121	0.116	121	150
LS 180 L	**FAP 160**	22	1456	41.7	0.84	90.7	7.4	3.2	144	0.158	144	180
LS 200 LT	**FAP 180**	30	1460	56.3	0.84	91.5	6.6	2.7	196	0.189	196	240
							Above, consult us					

6 poles 1000 min^{-1}

• LS FAP motor - IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y - Aluminium rotor, U.G. general use
• IP 44 brake - Separate mains supply

Type moteur	Type frein	Rated power at 50 Hz P_N kW	Rated speed N_N min^{-1}	Rated current $I_{N\,(400V)}$ A	Power factor $Cos\,\varphi$ 100 %	Efficiency η 100 %	Starting current / Rated current I_D / I_N	Starting torque / Rated torque M_D / M_N	Rated torque M_N N.m	moment of inertia J kg.m^2	Brake torque $M_f \pm 20$ % N.m	Weight IM B3 kg
LS 160 M	**FAP 132**	7..5	967	16.1	0.79	85.2	4.7	1.5	74	0.105	74	130
LS 160 L	**FAP 160**	11	967	23.3	0.79	86.3	4.6	1.6	109	0.150	109	160
LS 180 L	**FAP 160**	15	972	30.1	0.81	88.7	6.8	2.3	147	0.234	147	185
LS 200 LT	**FAP 180**	18.5	970	37.0	0.81	89.0	6.4	2.4	182	0.283	182	230
LS 200 L	**FAP 180**	22	972	43.6	0.81	89.9	6.0	2.0	216	0.353	216	250
							Above, consult us					

8 poles 750 min^{-1}

• LS FAP motor - IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y - Aluminium rotor, U.G. general use
• IP 44 brake - Separate mains supply

Motor type	Brake type	Rated power at 50 Hz P_N kW	Rated speed N_N min^{-1}	Rated current $I_{N\,(400V)}$ A	Power factor $Cos\,\varphi$ 100 %	Efficiency η 100 %	Starting current / Rated current I_D / I_N	Starting torque / Rated torque M_D / M_N	Rated torque M_N N.m	moment of inertia J kg.m^2	Brake torque $M_f \pm 20$ % N.m	Weight IM B3 kg
LS 160 M	**FAP 132**	4	715	11.1	0.65	80.0	3.2	1.9	53	0.083	53	110
LS 160 M	**FAP 132**	5.5	715	14.8	0.65	82.4	3.5	1.9	74	0.087	74	130
LS 160 L	**FAP 160**	7.5	715	19.7	0.67	82.1	3.4	1.9	100	0.121	100	160
LS 180 L	**FAP 160**	11	720	25.6	0.72	86.0	3.8	1.4	147	0.249	147	195
LS 200 L	**FAP 180**	15	725	32.9	0.75	87.7	4.4	1.6	198	0.339	198	240
							Above, consult us					

FAP asynchronous brake motors
LS FAP

Selection

4 poles 1500 min^{-1}

• LS FAP motor - IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y - Aluminium rotor, U.G. general use
• IP 44 brake - Separate mains supply

Motor type	Brake type	Rated power at 50 Hz P_N kW	Brake torque M_f ± 20 % N.m	IM 1001 (IM B3) Code	Qty	IM 3001 (IM B5) Code	Qty
LS 160 MP	**FAP 132**	11	72		-		-
LS 160 L	**FAP 160**	15	98		-		-
LS 180 MT	**FAP 160**	18.5	121		-		-
LS 180 L	**FAP 160**	22	144		-		-
LS 200 LT	**FAP 180**	30	196		-		-

Above, consult us

6 poles 1000 min^{-1}

• LS FAP motor - IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y - Aluminium rotor, U.G. general use
• IP 44 brake - Separate mains supply

Motor type	Brake type	Rated power at 50 Hz P_N kW	Brake torque M_f ± 20 % N.m	IM 1001 (IM B3) Code	Qty	IM 3001 (IM B5) Code	Qty
LS 160 M	**FAP 132**	7.5	74		-		-
LS 160 L	**FAP 160**	11	109		-		-
LS 180 L	**FAP 160**	15	147		-		-
LS 200 LT	**FAP 180**	18.5	182		-		-
LS 200 L	**FAP 180**	22	216		-		-

Above, consult us

8 poles 750 min^{-1}

• LS FAP motor- IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y - Aluminium rotor, U.G. general use
• IP 44 brake - Separate mains supply

Motor type	Brake type	Rated power at 50 Hz P_N kW	Brake torque M_f ± 20 % N.m	IM 1001 (IM B3) Code	Qty	IM 3001 (IM B5) Code	Qty
LS 160 M	**FAP 132**	4	53		-		-
LS 160 M	**FAP 132**	5.5	74		-		-
LS 160 L	**FAP 160**	7.5	100		-		-
LS 180 L	**FAP 160**	11	147		-		-
LS 200 L	**FAP 180**	15	198		-		-

Above, consult us

Selection example :

Speed :	750 min^{-1} - 8 poles
Power :	5.5 kW
Brake torque :	74 N.m
Use :	U.G. general use
Mounting and position :	IM 1001 (IM B3)
Supply voltage :	230/400 V

Designation :
8P LS 160 M 5.5 kW IM 1001 (IM B3) 230/400 V U.G. FAP 74 N.m

Code : -

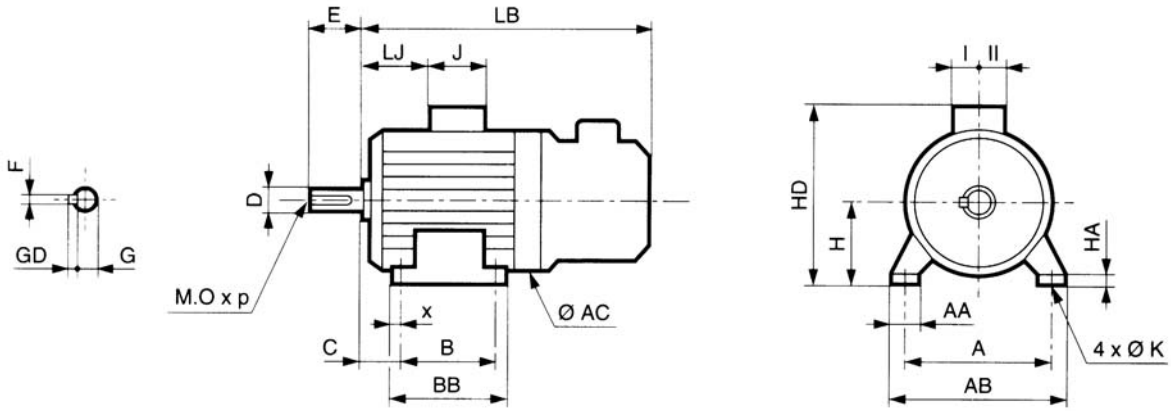
FAP asynchronous brake motors
LS FAP

Dimensions

Dimensions of the FAP - 4, 6, 8 poles asynchronous brake motor
IP 55 motor protection, IP 44 or IP 55 brake protection

Dimensions in millimetres

– foot mounted



Type	Asynchronous brake motor																
	A	AB	B	BB	C	X	AA	K	HA	H	AC	HD	LB	LJ	J	I	II
LS 160 MP	254	294	210	294	108	20	64	14.5	25	160	270	368	608	44	134	92	63
LS 160 M	254	294	210	294	108	20	60	14.5	25	160	345	395	680	44	134	92	63
LS 160 L	254	294	254	294	108	20	60	14.5	25	160	345	395	708	44	134	92	63
LS 180 MT	279	324	241	316	121	20	79	14.5	28	180	345	415	708	44	134	92	63
LS 180 L	279	339	279	329	121	25	86	14.5	25	180	384	435	792	54	205	100	95
LS 200 LT	318	378	305	365	133	30	108	18.5	32	200	384	455	817	60	205	100	95
LS 200 L	318	388	305	375	133	35	103	18.5	36	200	410	475	852	68	205	100	95

Type	Output shaft						
	F	GD	D	G	E	O	p
LS 160 MP/M FAP	12	8	42 k6	37	110	16	36
LS 160 L FAP	12	8	42 k6	37	110	16	36
LS 180 MT FAP	14	9	48 k6	42.5	110	16	36
LS 180 L FAP	14	9	48 k6	42.5	110	16	36
LS 200 LT FAP	16	10	55 m6	49	110	20	42
LS 200 L FAP	16	10	55 m6	49	110	20	42

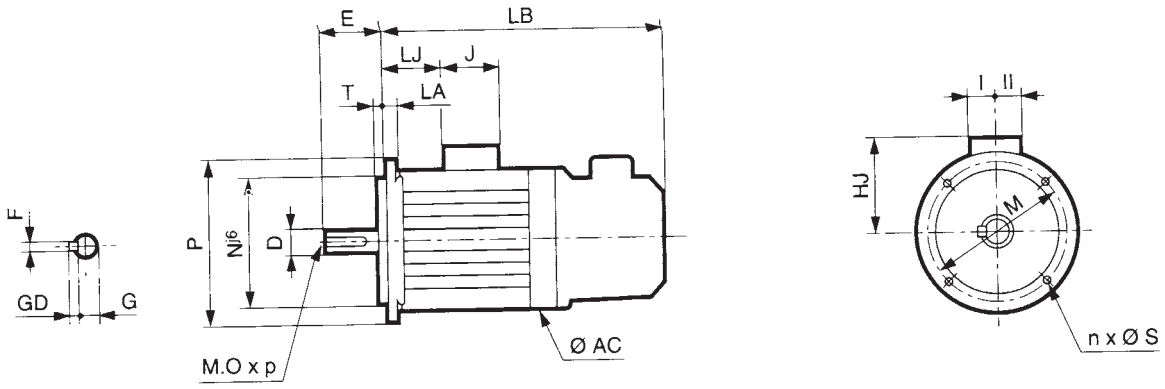
FAP asynchronous brake motors
LS FAP

Dimensions

Dimensions of the FAP asynchronous brake motors - 4, 6, 8 poles
IP 55 motor protection, IP 44 or IP 55 brake protection

Dimensions in millimetres

– (FF) plain hole flange mounted



	Asynchronous brake motor							
Type	LB	AC	HJ	LJ	J	I	II	Symb.
LS 160 MP	608	270	208	44	134	92	63	FF 300
LS 160 M	680	345	235	44	134	92	63	FF 300
LS 160 L	708	345	235	44	134	92	63	FF 300
LS 180 MT	708	345	235	44	134	92	63	FF 300
LS 180 L	792	384	255	54	205	100	95	FF 300
LS 200 LT	817	384	255	60	205	100	95	FF 350
LS 200 L	852	410	275	68	205	100	95	FF 350

	Flange							
Type	Symb.	M	N	P	T	n	S	LA
LS 160/180	FF 300	300	250	350	5	4	18.5	14
LS 200	FF 350	350	300	400	5	4	18.5	15